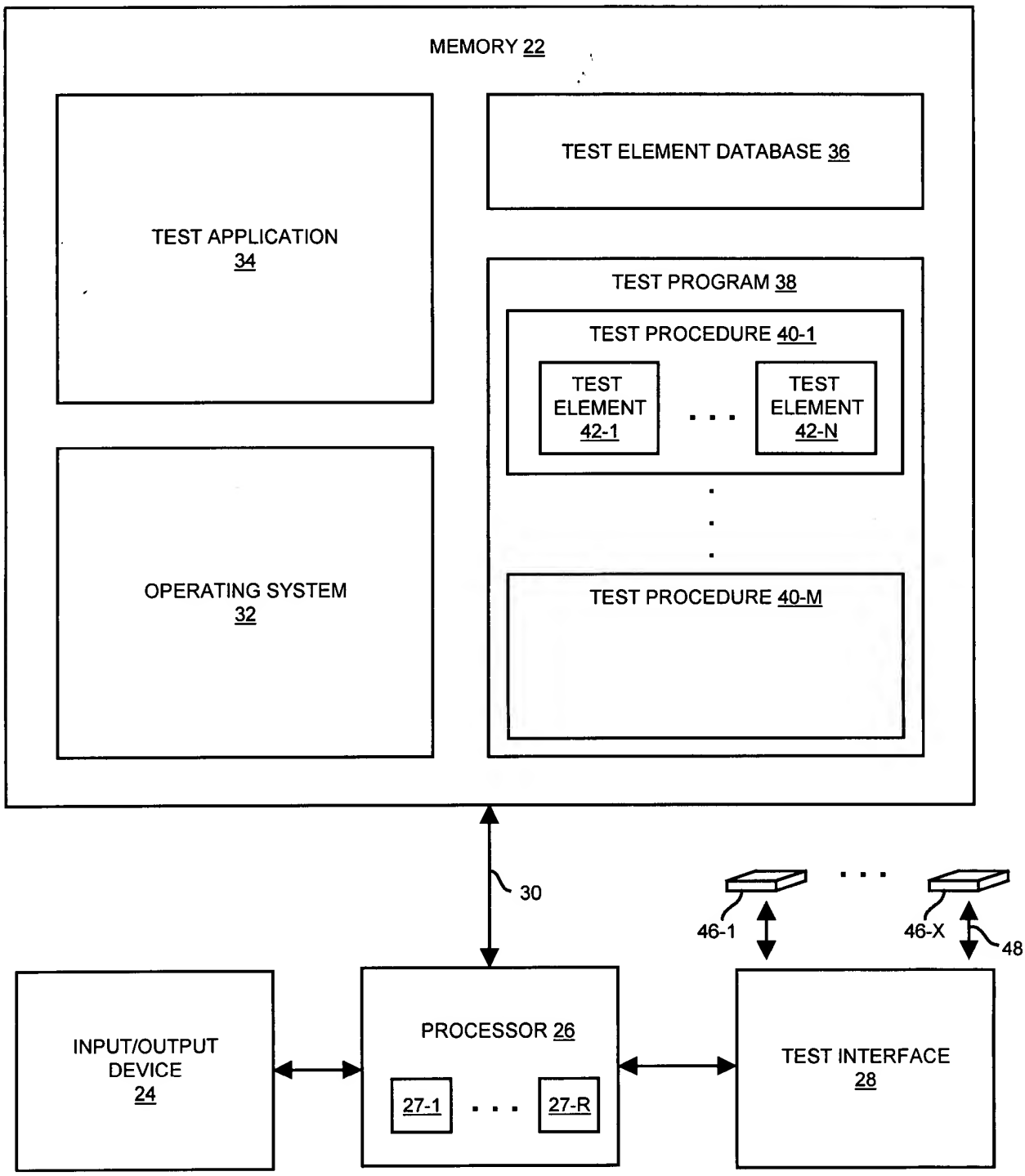
20
44
MEMORY 22
TEST APPLICATION 34
TEST ELEMENT DATABASE 36
TEST PROGRAM 38
TEST PROCEDURE 40-1
TEST ELEMENT 42-1
TEST ELEMENT 42-N
TEST PROCEDURE 40-M
OPERATING SYSTEM 32
30
46-1
46-X
48
INPUT/OUTPUT DEVICE 24
PROCESSOR 26
27-1
27-R
TEST INTERFACE 28

FIG. 1

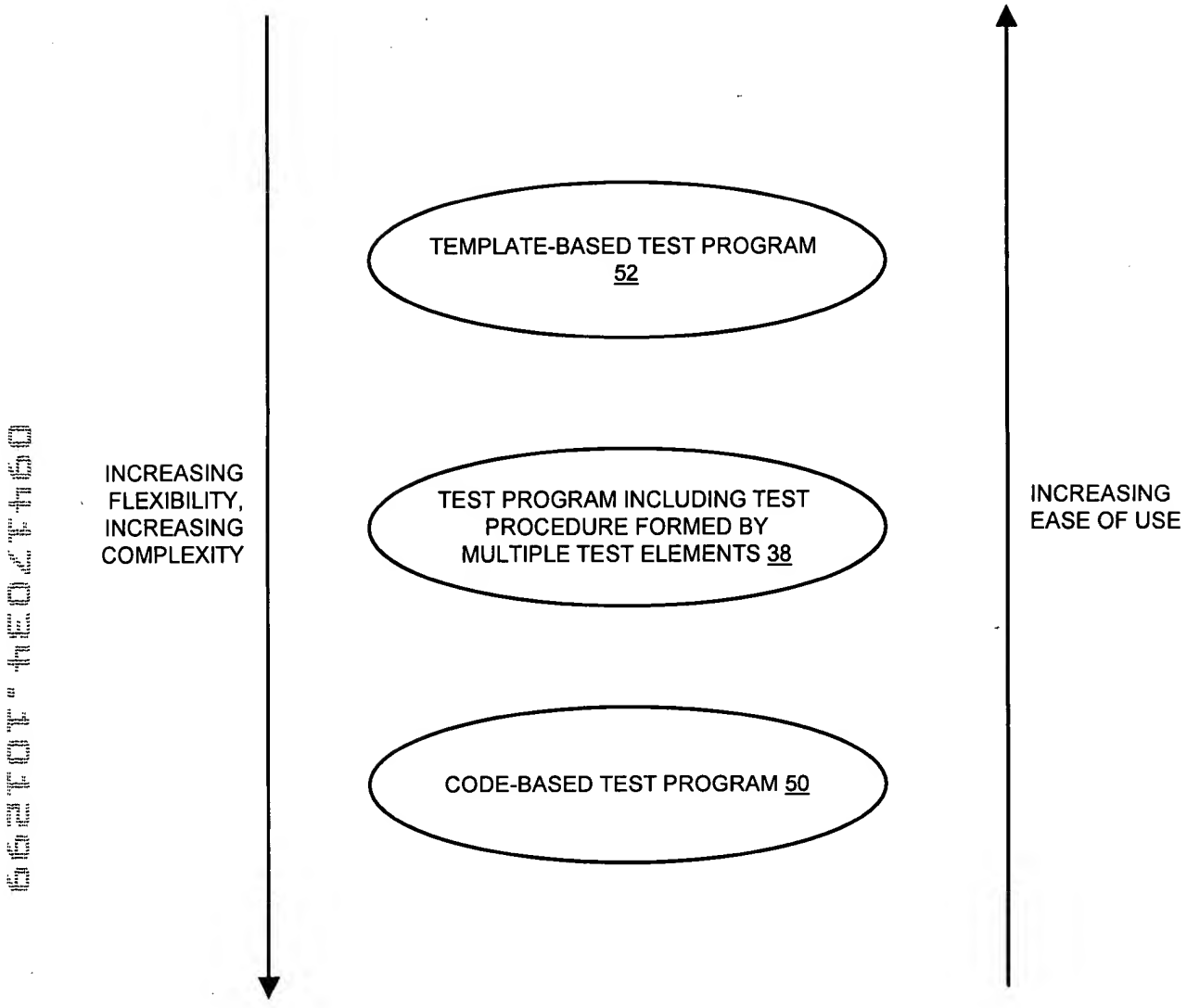
TEMPLATE-BASED TEST PROGRAM 52
TEST PROGRAM INCLUDING TEST PROCEDURE FORMED BY MULTIPLE TEST ELEMENTS 38
CODE-BASED TEST PROGRAM 50
INCREASING FLEXIBILITY, INCREASING COMPLEXITY
INCREASING EASE OF USE

FIG. 2

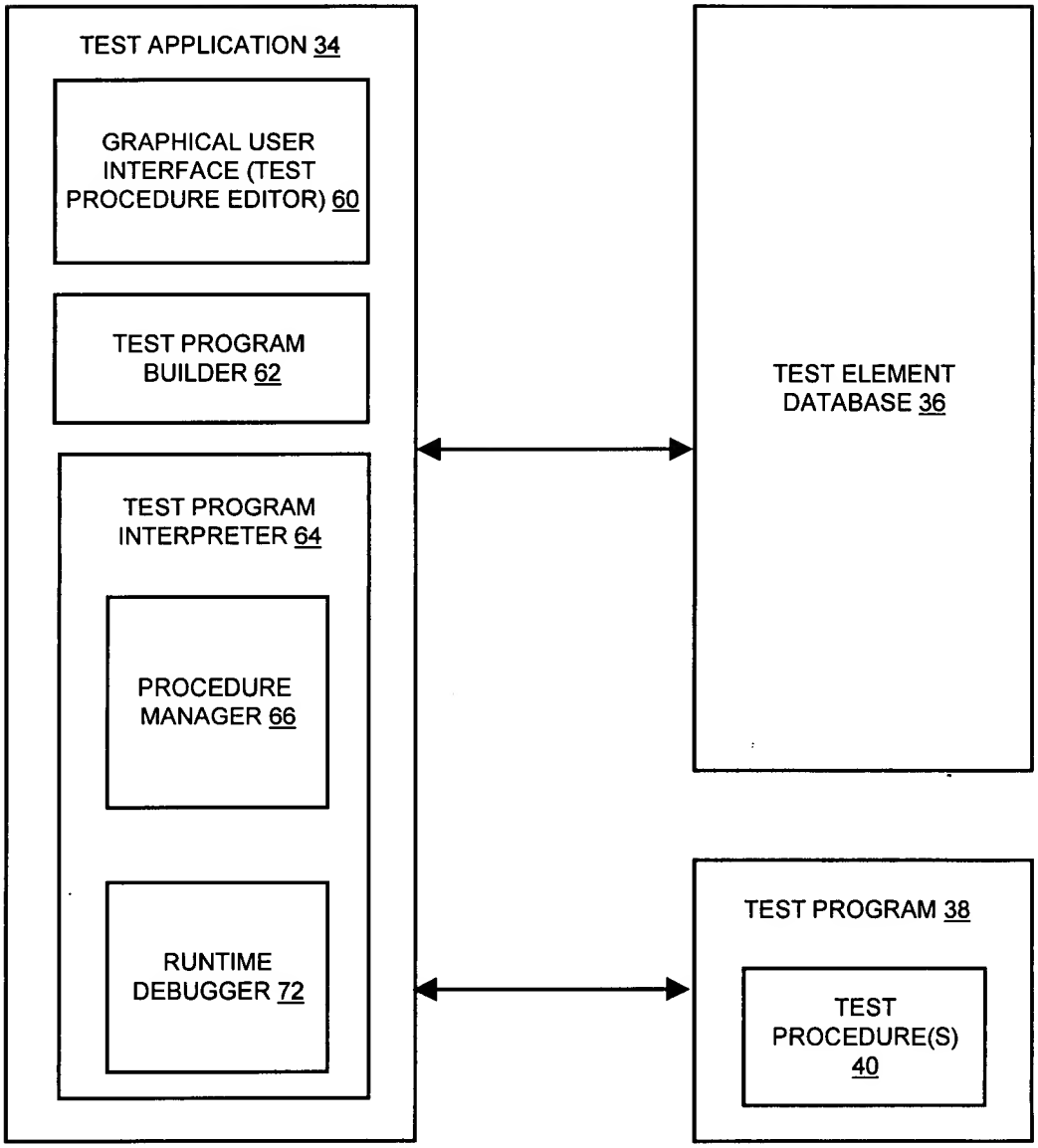
TEST APPLICATION 34
GRAPHICAL USER INTERFACE (TEST PROCEDURE EDITOR) 60
TEST PROGRAM BUILDER 62
TEST PROGRAM INTERPRETER 64
PROCEDURE MANAGER 66
RUNTIME DEBUGGER 72
TEST ELEMENT DATABASE 36
TEST PROGRAM 38
TEST PROCEDURE(S) 40

FIG. 3

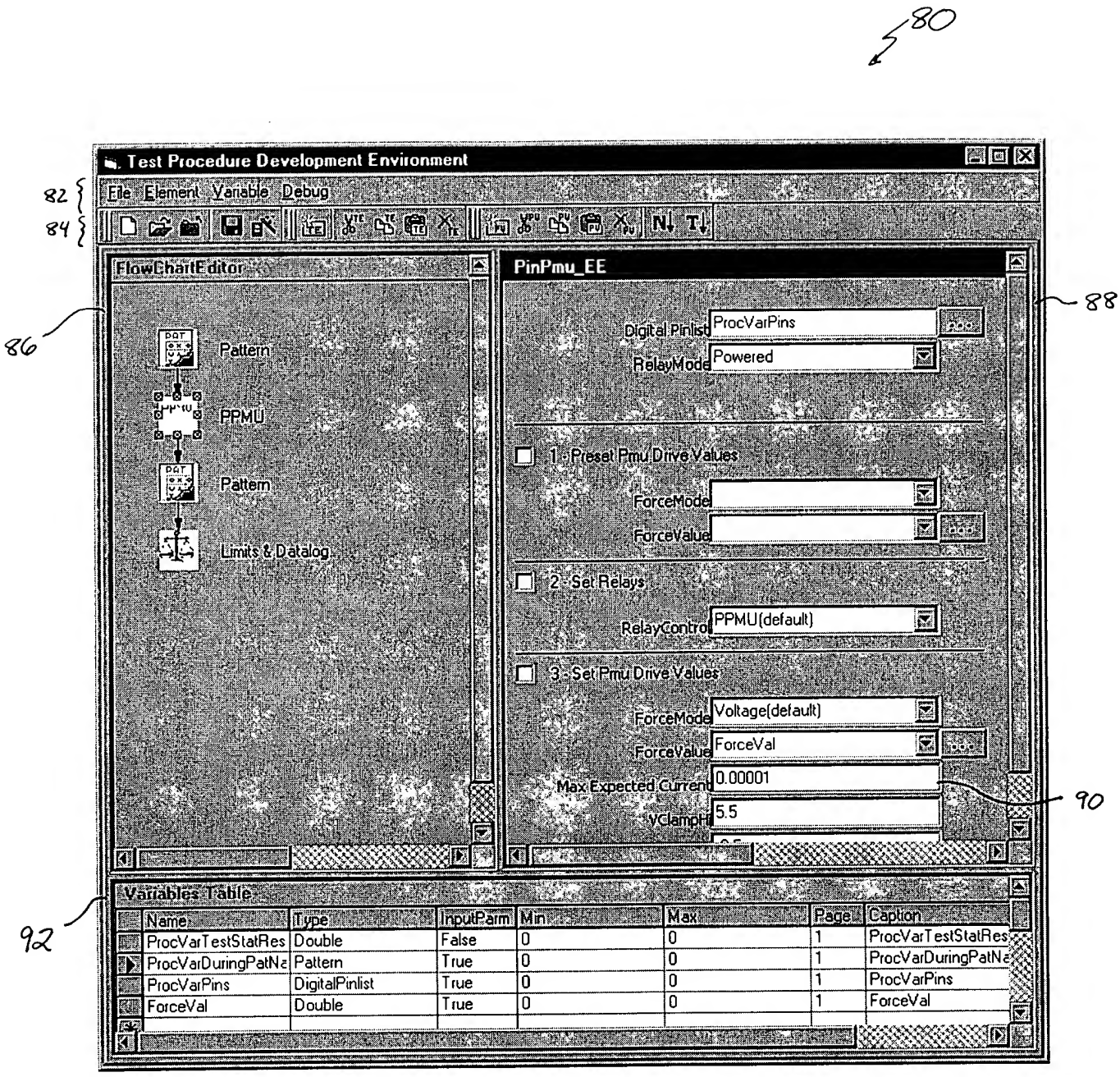
80
Test Procedure Development Environment
82
File Element Variable Debug
84
FlowChartEditor
86
Pattern
PPMU
Pattern
Limits & Datalog
PinPmu_EE
88
Digital Pinlist ProcVarPins
RelayMode Powered
1 - Preset Pmu Drive Values
ForceMode
ForceValue
2 - Set Relays
RelayControl PPMU(default)
3 - Set Pmu Drive Values
ForceMode Voltage(default)
ForceValue ForceVal
Max Expected Current 0.00001
90
VClampHi 5.5
Variables Table
92
Name Type InputParm Min Max Page Caption
ProcVarTestStatRes Double False 0 0 1 ProcVarTestStatRes
ProcVarDuringPatNa Pattern True 0 0 1 ProcVarDuringPatNa
ProcVarPins DigitalPinlist True 0 0 1 ProcVarPins
ForceVal Double True 0 0 1 ForceVal

FIG. 4

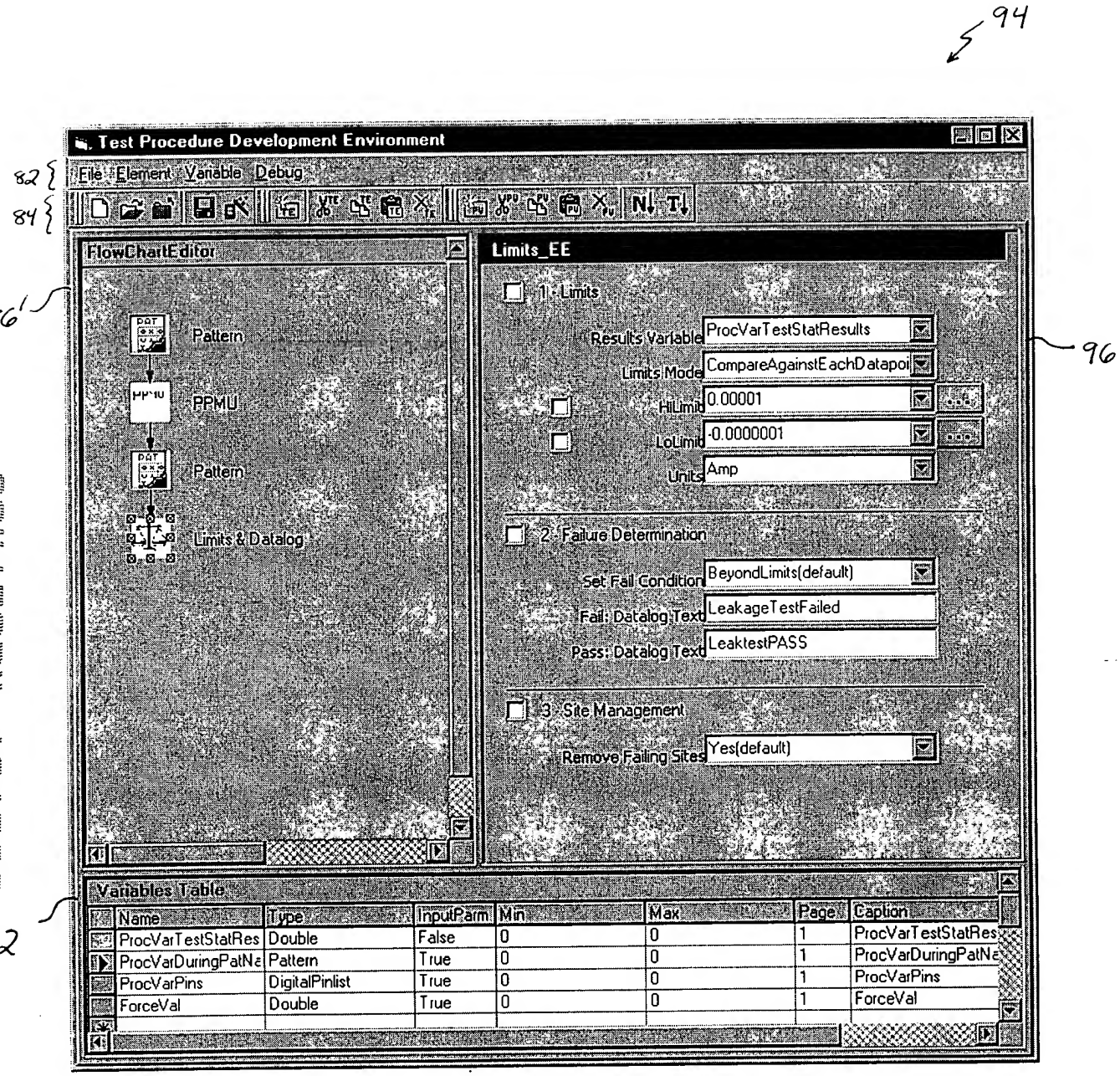
94
Test Procedure Development Environment
File Element Variable Debug
82
84
FlowChartEditor
86
Pattern
PPMU
Pattern
Limits & Datalog
Limits_EE
1 Limits
Results Variable
ProcVarTestStatResults
96
Limits Mode
CompareAgainstEachDatapoi
HiLimit
0.00001
LoLimit
-0.0000001
Units
Amp
2 Failure Determination
Set Fail Condition
BeyondLimits(default)
Fail Datalog Text
LeakageTestFailed
Pass Datalog Text
LeaktestPASS
3 Site Management
Remove Failing Sites
Yes(default)
Variables Table
92
Name
Type
InputParm
Min
Max
Page
Caption
ProcVarTestStatRes
Double
False
0
0
1
ProcVarTestStatRes
ProcVarDuringPatNa
Pattern
True
0
0
1
ProcVarDuringPatNa
ProcVarPins
DigitalPinlist
True
0
0
1
ProcVarPins
ForceVal
Double
True
0
0
1
ForceVal

FIG. 5

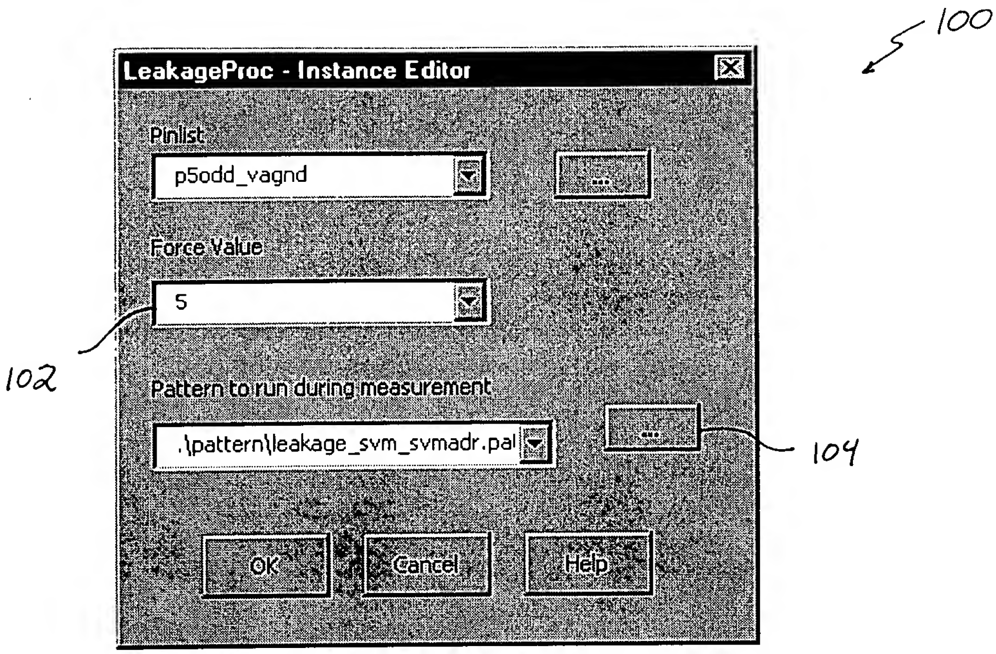

FIG. 6

106

Microsoft Visual Basic - Element.xla [running] - [PinPmu_E (Code)]

File Edit View Insert Format Debug Run Tools Window Help

Ln 58, Col 1

(General) | TestElement

```
'3  -   Set Drive Values
If (SetForceValue.ArgumentStr <> TL_C_EMPTYSTR) And _
    (SetIMagnitudeValue.ArgumentStr <> TL_C_EMPTYSTR) Then
    With TheHdw.pins(PinList.ArgumentValue)
        If CStr(SetForceMode.ArgumentValue) = TL_C_CURRENT Then
            'force current
            If CStr(VClampLo.ArgumentValue) <> TL_C_EMPTYSTR Then
                Call .PinLevels.ModifyLevel(chVCL, CDbl(Val(VClampLo.ArgumentValue)))
            End If
            If CStr(VClampHi.ArgumentValue) <> TL_C_EMPTYSTR Then
                Call .PinLevels.ModifyLevel(chVCH, CDbl(Val(VClampHi.ArgumentValue)))
            End If
            If CStr(SetRelayControl.ArgumentValue) <> tl_GetIndexOf(TL_C_PPRCPFSTR) Then
                te_IrangeIdx = tl_te_GetBestRange(SetForceValue.ArgumentValue, TheHdw.PPMU.ForceIRangeList, T
                'set the Ppmu in a current forcing mode, and voltage measure mode
                .PPMU.ForceCurrent(te_IrangeIdx) = SetForceValue.ArgumentValue
                If (VClampLo.ArgumentStr <> TL_C_EMPTYSTR) Or (VClampHi.ArgumentStr <> TL_C_EMPTYSTR) Then
                    'if clamps are used, then the PE relay is closed, and this then
                    '   requires that the current loads be set to zero.
                    Call .PinLevels.ModifyLevel(chISource, 0)
                    Call .PinLevels.ModifyLevel(chISink, 0)
                End If
            End If
            If CStr(SetRelayControl.ArgumentValue) = tl_GetIndexOf(TL_C_PPRCPFSTR) Then
                te_IrangeIdx = tl_te_GetBestRange(0, TheHdw.PPMU.ForceIRangeList, True)
                ' Override Functional Load levels on Pin Electronics
                ' set the PPMU itself to force 0A
                .PPMU.ForceCurrent(te_IrangeIdx) = 0#
                ' Modify programmed load on Pin Electronics
                If CDbl(Val(SetForceValue.ArgumentValue)) > 0 Then
                    ' set VT to ensure that load will be applied
                    Call .PinLevels.ModifyLevel(chVT, TL_MAX_VT_LEVEL)
                    ' set the load current
                    Call .PinLevels.ModifyLevel(chISource, SetForceValue.ArgumentValue)
                Else
                    ' set VT to ensure that load will be applied
```

108

FIG. 7

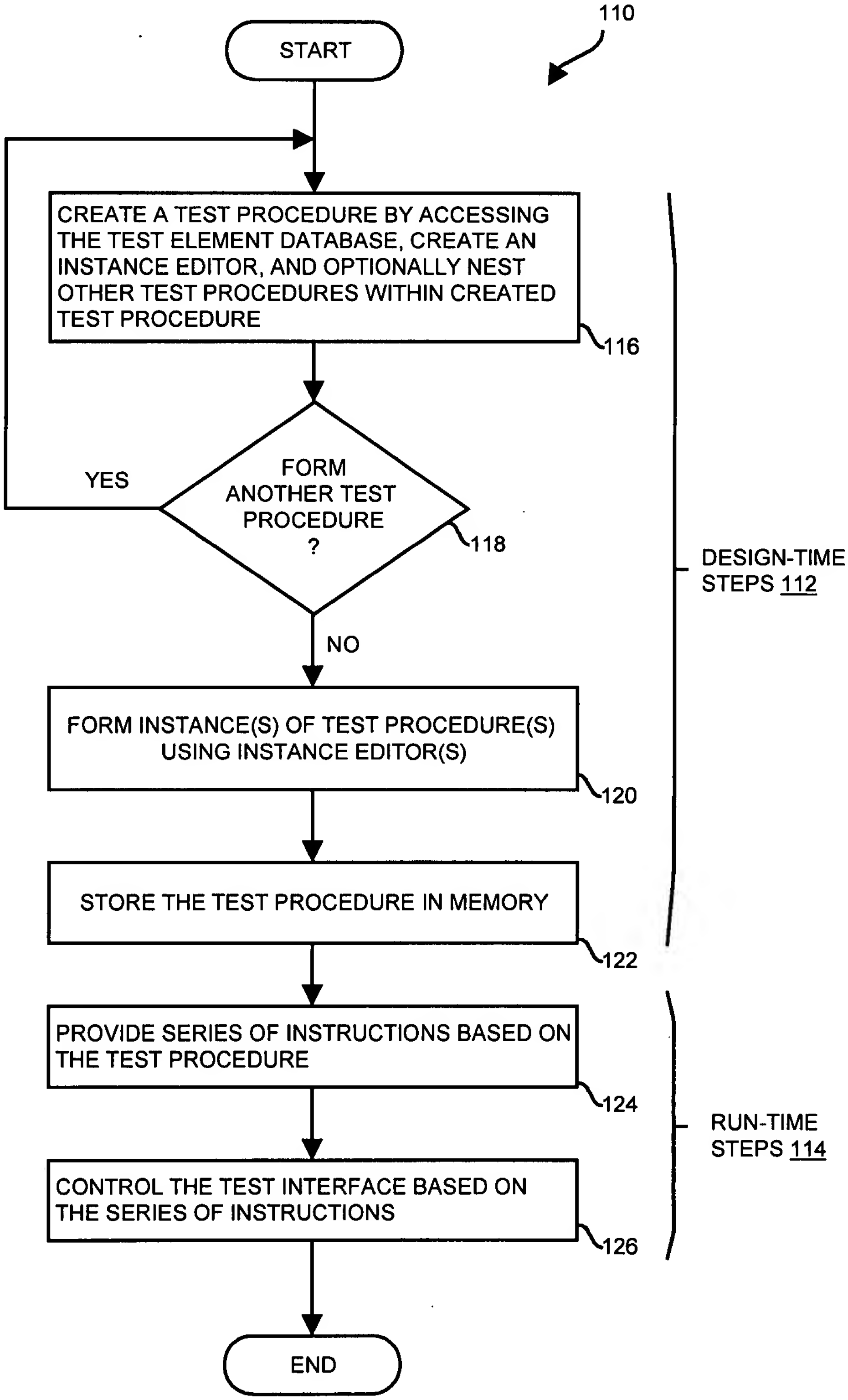

FIG. 8

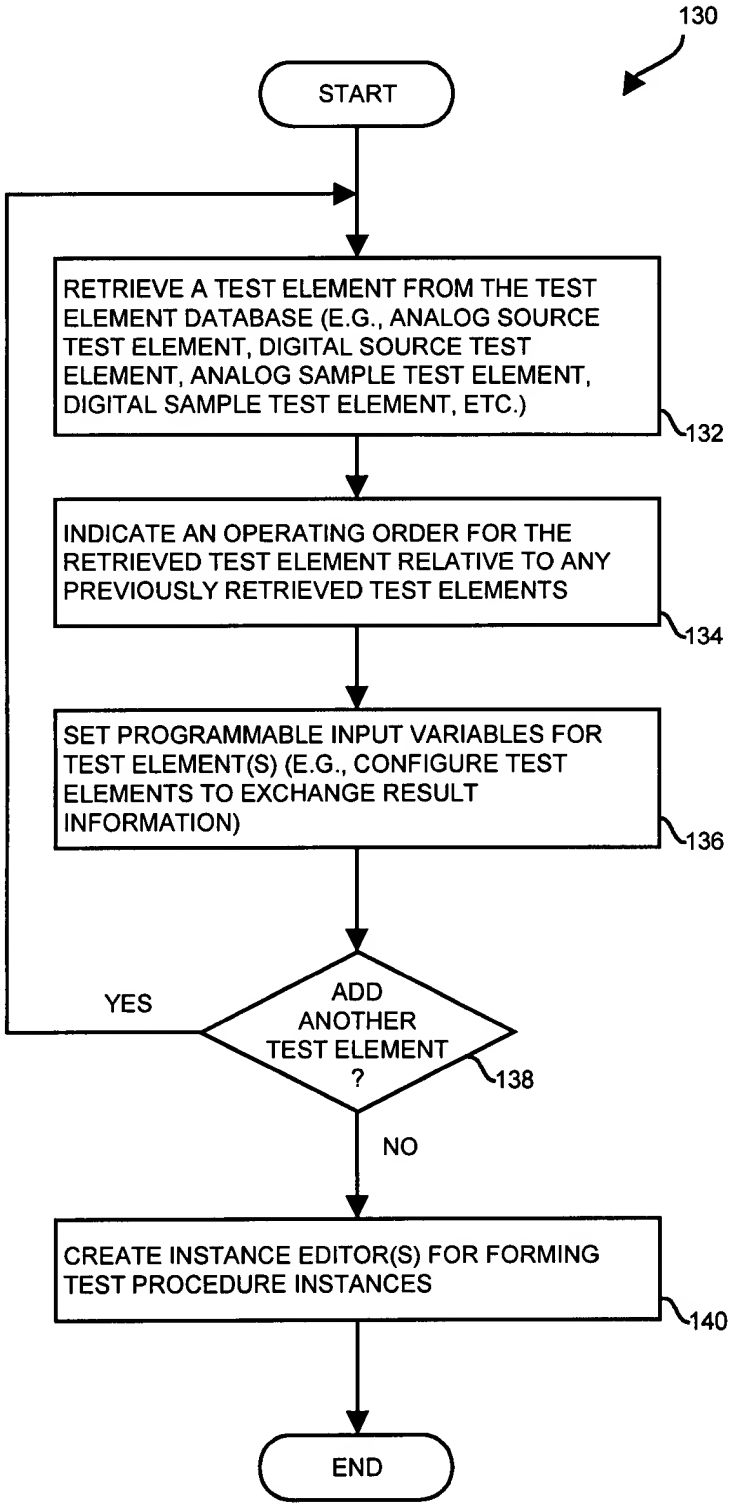
130
START
RETRIEVE A TEST ELEMENT FROM THE TEST ELEMENT DATABASE (E.G., ANALOG SOURCE TEST ELEMENT, DIGITAL SOURCE TEST ELEMENT, ANALOG SAMPLE TEST ELEMENT, DIGITAL SAMPLE TEST ELEMENT, ETC.)
132
INDICATE AN OPERATING ORDER FOR THE RETRIEVED TEST ELEMENT RELATIVE TO ANY PREVIOUSLY RETRIEVED TEST ELEMENTS
134
SET PROGRAMMABLE INPUT VARIABLES FOR TEST ELEMENT(S) (E.G., CONFIGURE TEST ELEMENTS TO EXCHANGE RESULT INFORMATION)
136
ADD ANOTHER TEST ELEMENT ?
138
YES
NO
CREATE INSTANCE EDITOR(S) FOR FORMING TEST PROCEDURE INSTANCES
140
END

FIG. 9